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GEORGE OTIS SMITH, DIRECTOR

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PROFILE SURVEYS
IN
HOOD AND SANDY RIVER BASINS
OREGON

PREPARED UNDER THE DIRECTION OF

R. B. MARSHALL, CHIEF GEOGRAPHER



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PROFILE SURVEYS IN HOOD AND SANDY RIVER BASINS, OREGON.

Prepared under the direction of R. B. MARSHALL, Chief Geographer.

HOOD RIVER DRAINAGE BASIN.

GENERAL FEATURES.

Hood River drains the northern slopes of Mount Hood. It is formed by the junction of the East and West forks, which drain opposite sides of the mountain, and flows northeastward into Columbia River at the town of Hood River. The waters of the stream are used for both water power and irrigation, and, as they are supplied from the glaciers on the mountain, the flow is well maintained through the summer months. The drainage area is heavily forested, although part of the area was burned many years ago. The mean annual precipitation at Hood River is 36 inches. The valley of the stream is noted for its apples, berries, and other fruit. The results of profile surveys in the Hood River basin are given in Plate I (at end of volume).

GAGING STATIONS.

The Geological Survey has maintained in the basin of Hood River the gaging stations indicated by the following list. The stations are arranged in downstream order, the position of tributaries being indicated by indentation. A dash after a date indicates that the station was being maintained June 30, 1913. A period after a date indicates discontinuance.

Hood River at Dee, Oreg., May 21, 1913—

Hood River at Winans, Oreg., 1905-7; 1910—

Hood River near Tucker, Oreg., 1897-99; 1913—

Hood River at Hood River, Oreg., 1913—

East Fork of Hood River near Mount Hood, Oreg., 1913—

East Fork irrigation canal near Mount Hood, Oreg., 1913—

West Fork of Hood River near Dee, Oreg., 1913—

SANDY RIVER DRAINAGE BASIN.**GENERAL FEATURES.**

Sandy River heads in the glaciers of Mount Hood, flows northwestward, and unites with Columbia River at Troutdale. It drains the western slope of the Cascade Mountains at their northern extremity in Oregon. The principal tributaries are Bull Run River, which drains the Oregon National Forest and furnishes the water supply for the city of Portland; Salmon and Little Sandy rivers, and Zigzag, Camp, and Still creeks. The drainage area includes 521 square miles at the mouth of the river, 228 square miles above the mouth of Bull Run River, and 118 square miles above the mouth of Zigzag Creek. The drainage area of Bull Run River at the mouth is 168 square miles.

The mean annual precipitation at Bull Run is 76 inches; at Government Camp, 87 inches. It is likely, however, that the figure for Government Camp is not representative, because of the close proximity of the station to Mount Hood. A large part of the precipitation on the headwater region falls as snow. In the foothills, however, it nearly all appears as rain during the nine months from September to May. The value of the waters of this stream lies in their availability for municipal water supplies and in the water power that can be generated by them. Favorable sites for power development are numerous and the distance from any of them to an industrial center is not great. A large part of the drainage area is heavily forested. There are many areas from which the timber was burned a good many years ago, but these areas have grown up in second-growth timber and the underbrush is almost impenetrable.

As is usual with glacier-fed streams, a protracted period of cold weather is likely to cause for a short time in winter a lower discharge than the natural low-water flow in the summer.

The best storage site in the basin is probably at Summit Swamp, on Salmon River, in secs. 6, 7, and 18, T. 4 S., R. 9 E., where about 60,000 acre-feet of water can be impounded with a 150-foot dam. At Bull Run Lake the water leaks through a natural dam of glacial bowlders. The natural storage thus provided probably could not be augmented artificially except at a prohibitive cost.

The results of profile surveys in the Sandy River basin are set forth in Plate II (at end of volume).

GAGING STATIONS.

The Geological Survey has maintained in the basin of Sandy River the gaging stations indicated by the following list. The stations are arranged in downstream order, the position of tributaries being indi-

cated by indention. A dash after a date indicates that the station was being maintained June 30, 1913; a period after a date indicates discontinuance.

Sandy River above Salmon River, at Brightwood, Oreg., 1910—
 Sandy River below Salmon River, near Brightwood, Oreg., 1907-1911.
 Sandy River near Marmot, Oreg., 1911—
 Sandy River above Bull Run River, near Bull Run, Oreg., 1910-1912.
 Sandy River below Bull Run River, near Bull Run, Oreg., 1910—
 Clear Fork of Sandy River, near Welches, Oreg., 1913—
 Lost Creek, near Welches, Oreg., 1913—
 Zigzag Creek, at Rowe, Oreg., 1910-1913.
 Still Creek, near Rowe, Oreg., 1910-1912.
 Salmon River, near Rowe, Oreg., 1910-1912.
 Salmon River, at Welches, Oreg., 1913—
 Salmon River, near Brightwood, Oreg., 1912-13.
 Bull Run River, near Bull Run, Oreg., 1907—
 Little Sandy River, near Marmot, Oreg., 1913—
 Little Sandy River, near Bull Run, Oreg., 1911-1913.
 Little Sandy River flume, near Bull Run, Oreg., 1911-1913.

PUBLICATIONS.

The following publications of the Geological Survey contain the results of investigations of stream flow at the stations indicated in the preceding lists:

Hood River basin:

Annual Reports: Nineteenth, Part IV; Twentieth, Part IV; Twenty-first, Part IV.
 Water-Supply Papers: 16, 28, 38, 178, 214, 252, and 362.¹

Sandy River basin:

Water-Supply Papers: 252, 272, 292, 312, 332,¹ 362.¹

Water-supply papers and other publications of the United States Geological Survey containing data in regard to the water resources of the United States may be obtained or consulted as indicated below.

1. Copies may be obtained free of charge by applying to the Director of the Geological Survey, Washington, D. C. The edition printed for free distribution is, however, small and is soon exhausted.

2. Copies may be purchased at nominal cost from the Superintendent of Documents, Government Printing Office, Washington, D. C., who will on application furnish lists giving prices.

3. Sets of the reports may be consulted in the libraries of the principal cities in the United States.

¹ In preparation June, 1914.

4. Complete sets are available for consultation in the local offices of the water-resources branch of the Geological Survey, as follows:

Albany, N. Y., Room 18, Federal Building.
Atlanta, Ga., Post Office Building.
St. Paul, Minn., Old Capitol Building.
Helena, Mont., Montana National Bank Building.
Denver, Colo., 302 Chamber of Commerce Building.
Salt Lake City, Utah, Federal Building.
Boise, Idaho, 615 Idaho Building.
Portland, Oreg., 416 Couch Building.
Tacoma, Wash., Federal Building.
San Francisco, Cal., 328 Customhouse.
Los Angeles, Cal., Federal Building.
Santa Fe, N. Mex., Capitol Building.
Honolulu, Hawaii, Kapiolani Building.

A list of the Geological Survey's publications may be obtained by applying to the Director of the United States Geological Survey, Washington, D. C.

